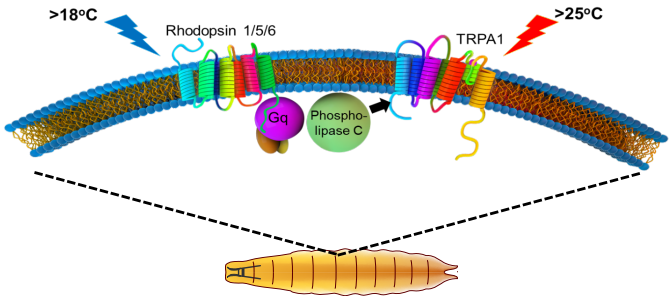
Seminar　生命理学セミナー

Recent Progress in mechanisms of temperature sensation in insects



Dr. Takaaki Sokabe /曽我部隆彰 博士

National Institute for Physiological Sciences / 生理研

Every animal actively seeks for favorable temperatures in dynamic thermal landscapes depending on their innate preferences. It has been a long-lasting question as to how we sense the environmental temperatures, and in the last two decades a subset of TRP channels have been identified as a physiological thermosensor, whose activity is directly regulated by temperature changes. This machinery appears to be conserved among a wide range of species from insects to human. On the other hand, the mechanisms of temperature sensation and body temperature regulation are complex and still largely unknown.

Our group is investigating molecular basis of temperature sensation and adaptation using fruit flies. Unlike mammals with their own body temperatures controlled by autonomous regulation, insects equilibrate their body temperature with the environments. Therefore, they are highly sensitive to temperature fluctuation along with a variety of temperature-dependent behaviors. We recently found that fruit fly larvae could discriminate subtle temperature differences and displayed a development-dependent shift in the thermal preference. This thermal preference switch includes GPCR, lipid signaling and TRPA1. In this seminar I will highlight our recent concept including potential roles of membrane lipids in sensory functions and resultant behaviors. Other physiological mechanisms of temperature and chemical sensations in different insect models will also be discussed.

Oct 2nd,　16:30-18:00

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Contact：Azusa Kamikouchi（kamikouchi@bio.nagoya-u.ac.jp）